



OFFICE OF
THE CHAIRMAN

DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20591

April 23, 1970

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Honorable John H. Shaffer
Administrator
Federal Aviation Administration
Washington, D. C. 20590

Dear Mr. Shaffer:

The Board's participation in the current investigation of the Scandinavian Airlines System, McDonnell-Douglas DC-8-62, SE-DBE, accident at the Leonardo da Vinci Airport, Rome, Italy, April 18, 1970, has revealed a failure which in our opinion requires immediate action.

The takeoff was aborted due to a complete disintegration of the first-stage fan hub assembly, P/N 576801, of the No. 1 engine, model JT3D-3B. Parts of the failed engine inflicted extensive damage to the Nos. 2 and 3 engines as well as penetrated the fuel tank areas of the left wing assembly, causing explosion and fire. The aircraft was a total loss.

All 64 passengers and 10 crewmembers evacuated through exits on the right side of the aircraft; however, 14 passengers were injured, one seriously and all requiring hospitalization.

The subject fan hub assembly was of the same model and design as the one involved in the in-flight disintegration which occurred to a Western Airlines Boeing 720-B near Annette Island, Alaska, on March 28, 1970; however, the failed parts from the latter were not available for detailed examination since the occurrence was over the Pacific Ocean.

The total time in service of the SAS failed fan hub assembly was approximately 9,000 hours, with 3,000 cycles. The Western Airlines hub failed after 6,000 hours and approximately 4,000 cycles.

The Board is well aware of the mandatory corrective action taken by your Administration as a result of the number of failures involving the earlier designed first-stage hub assembly, P/N 431001.

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However, we are greatly concerned that catastrophic failures have occurred to the latest model first-stage hub assembly, which was designed to provide a greater degree of reliability than the older model.

The parts of the failed hub assembly of the Scandinavian accident have been released to the National Transportation Safety Board by the Italian Government for further investigation of the engine manufacturer and for possible further corrective action. As an interim measure, the Board feels that some immediate corrective action is warranted.

Due to the seriousness of failures involving high-speed rotating components of gas turbine engines similar to the subject first-stage hub assembly, the Board recommends that a precautionary inspection be conducted as soon as possible of all of the new first-stage fan hub assemblies, P/N 576801, now in service by an approved inspection method. Consideration should also be given to a reduction in the service and cyclic life, pending further investigation of the failed components.

Members of our Bureau of Aviation Safety staff have discussed these failures with members of your engineering staff, FS-100, and your Eastern Region propulsion staff. If we can be of further assistance, please feel free to contact us.

Sincerely yours,

/s/

John H. Reed
Chairman